IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:	Vikram Singh		
SERIAL NO.:	10/805,966	EXAMINER:	Alejandro Mulero, Luz L.
FILED:	March 22, 2004	ART UNIT:	1792
FOR:	PLASMA IMMERSION ION IMPLANTATION APPARATUS AND METHOD		

DECLARATION UNDER 37 CFR §1. 132

I, Vikram Singh, being duly sworn depose and say:

That I am a citizen of the United States of America, and I reside at the city of North Andover, in the state of Massachusetts;

That I am one of the inventors of the above-identified patent application;

That I was graduated in 1987 with a Bachelor of Technology degree from Indian Institute of Technology located in Varanasi, India, and in 1990 with a Master of Science degree from Texas Tech University located in Lubbock, Texas. I also was graduated in 1994 with Doctor of Philosophy degree from Texas Tech University;

That I have been working in the field of plasma based processing systems and processes since 1994. I have been employed by Varian Semiconductor Equipment Associates, Inc. since 2003, and part of this time has been spent in this field. Since 2003, I have been the Senior Manager Research and Development, Director of Plasma Doping (PLAD) Product, and Senior Director of Product Development;

That I have been granted 14 patents in the plasma based processing field, and I am an author of over 40 papers;

That I am familiar with the above-identified patent application and with the following reference cited by the Examiner, *i.e.* U.S. 5,567,268 ("the `268 patent") and U.S. 6,096,160 ("the

`160 patent");

That I understand the Examiner identifies loop 22 disclosed in the `268 patent as inherently being a parasitic antenna which, even if it is not electrically coupled to an RF power, resonates RF current into the in the bell jar 21 to excite and ionize the process gas contained in the bell jar 21;

That I understand the Examiner identifies solenoid coils 53a and 53b disclosed in the `160 patent as inherently being a parasitic antenna which, even if not electrically coupled to the RF power, resonates RF current into the in the bell jar 51 to excite and ionize the process gas contained in the bell jar 51;

That I reviewed the '268 patent;

That in the `268 patent, a grounded top board 24 is provided between the loop 22 and the multi-turn antenna 31, as shown in FIG. 2 and 3;

That, in my opinion, a grounded, metallic board 24 placed between the multi-turn antenna 31 and the loop 22 will magnetically shield the loop 22 and cause the magnetic field from the multi-turn antenna 31 to be short circuited to the ground. Therefore, the magnetic field from the multi-turn antenna 31 will be prevented from reaching the loop 22, and the loop 22 will not see the magnetic field from the multi-turn antenna 31. The loop 22, therefore, will not resonate RF current into the bell jar 21 to excite and ionize the process gas and generate plasma when it is not electrically coupled to an RF power source, and the loop 22 is not equivalent to the parasitic coil recited in claims 1, 24, and 38 of the above-identified patent application;

That I reviewed the '160 patent;

That in the `160 patent, the loop 52, which is electrically connected to the RF power supply 66 and the ground, is provided between the solenoid coil 53a and 53b and the bell jar 51, and a grounded upper lid 56 is provided between the solenoid coils 53a and 53b and the

processing chamber 57, as shown in FIG. 4, 5, and 6;

That in the `160 patent, it is explicitly indicated that the solenoid coils 53a and 53b do not generate magnetic field when they are not electrically connected to a power source (column 10, line 66 – column 2, line 2). Assuming, *arguendo*, that the magnetic field is generated by the coils 53a and 53b even when the coils are not electrically connected to a power source, the generated magnetic field will be short circuited to the ground via the loop 22 and the grounded upper lid 56. Therefore, the solenoid coils 53a and 53b, when not electrically connected to the power source, will be magnetically shielded by the loop 22 and the grounded upper lid 56. The coils, 53a and 53b will not resonate RF current into the bell jar 51 to excite and ionize a process gas so as to generate a plasma in the bell jar 51, and the coils 53a and 53b are not equivalent to the parasitic coil recited in claims 1, 24, and 38 of the above-identified patent application; and

That the undersigned declares further that all statements made here of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both , under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or validity or enforceability of any patent issuing thereon.

Further declarant saith not.

Date: 12/10/09

Vikram Singh